



Case Report

Multiple cranial gunshot injuries without skull penetration

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ABSTRACT

We report on a 74 year old patient who was admitted to the Emergency Department of Cologne University after an attempt to commit suicide. Clinical examination showed no neurological deficits but two bleeding bullet holes in his head bilateral in the temporal areas initially suggesting a complete passage of a bullet through the head.

The patient was able to answer questions but showed also a slight bleeding from his mouth while talking. Emergency CT showed a bullet between the internal and external lamina of the temporal bone on both sides and one bullet in the hard palate. With general anesthesia, all bullets were removed without complications, the wounds were sutured and general antibiotics were administered. The patient survived without neurological deficit and antidepressants were commenced. Examination of the gun revealed a Second World-War 7.65 mm Luger handgun with degenerated gun powder quality and humidity after 50 years storage in the patient's bedroom.

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1. Introduction

Multiple self-inflicted shots through the head using a 7.65 mm shotgun are lethal under normal conditions. Here we report the rare case of a patient with multiple bullet injuries in his head while being fully cooperative and awake.

The patient was able to answer questions but showed also a slight bleeding from his mouth while talking. Emergency CT showed a bullet between the internal and external lamina of the temporal bone on both sides and one bullet in the hard palate. With general anesthesia, all bullets were removed without complications, the wounds were sutured and general antibiotics were administered. The patient survived without deficits and antidepressive therapy was initiated. Examination of the gun revealed a Second World-War 7.65 mm Luger handgun with degenerated gun powder quality and humidity after 50 years storage in the patient's bedroom.

2. Case report

A 74 year old patient who was admitted to the Department of Neurosurgery of Cologne University. The patient was brought in by the paramedics fully responsive and conscious on a wheelchair. Neurologic examination showed no deficits but two bleed-

ing bullet holes in his head bilateral in the temporal areas initially suggesting a complete passage of a bullet through the head.

The patient was able to answer questions but showed also a slight bleeding from his mouth while talking. Emergency CCT showed a bullet between the internal and external lamina of the temporal bone on both sides and one bullet in the hard palate (Fig. 1a–d). No skull penetration or resulting brain injury was seen (Fig. 1e). He explained that he first tried to commit suicide with a shot in his mouth directed to his brain half an hour ago. After firing and noticing that he was still awake, he continued by directing the gun to his right temporal area and pulled the trigger again. Again, the gun fired and the patient noticed that he was still awake so he put the gun into his left hand, pushed the gun against his left temporal area and fired again. The shots woke up the patient's wife who found him and called the ambulance.

With general anesthesia, all bullets were removed without complications, the wounds were sutured and general antibiotics were administered. The patient survived without deficits and antidepressive therapy was initiated. Examination of the gun revealed a second world-war 7.65 mm Luger handgun with degenerated gun powder quality and humidity after 50 years storage in the patient's bedroom.

3. Discussion

Statistically, most gunshot suicides are male, middle-aged and living with a partner and involve the use of shotguns.^{1,3} They are less likely to have current or past mental health problems, or a

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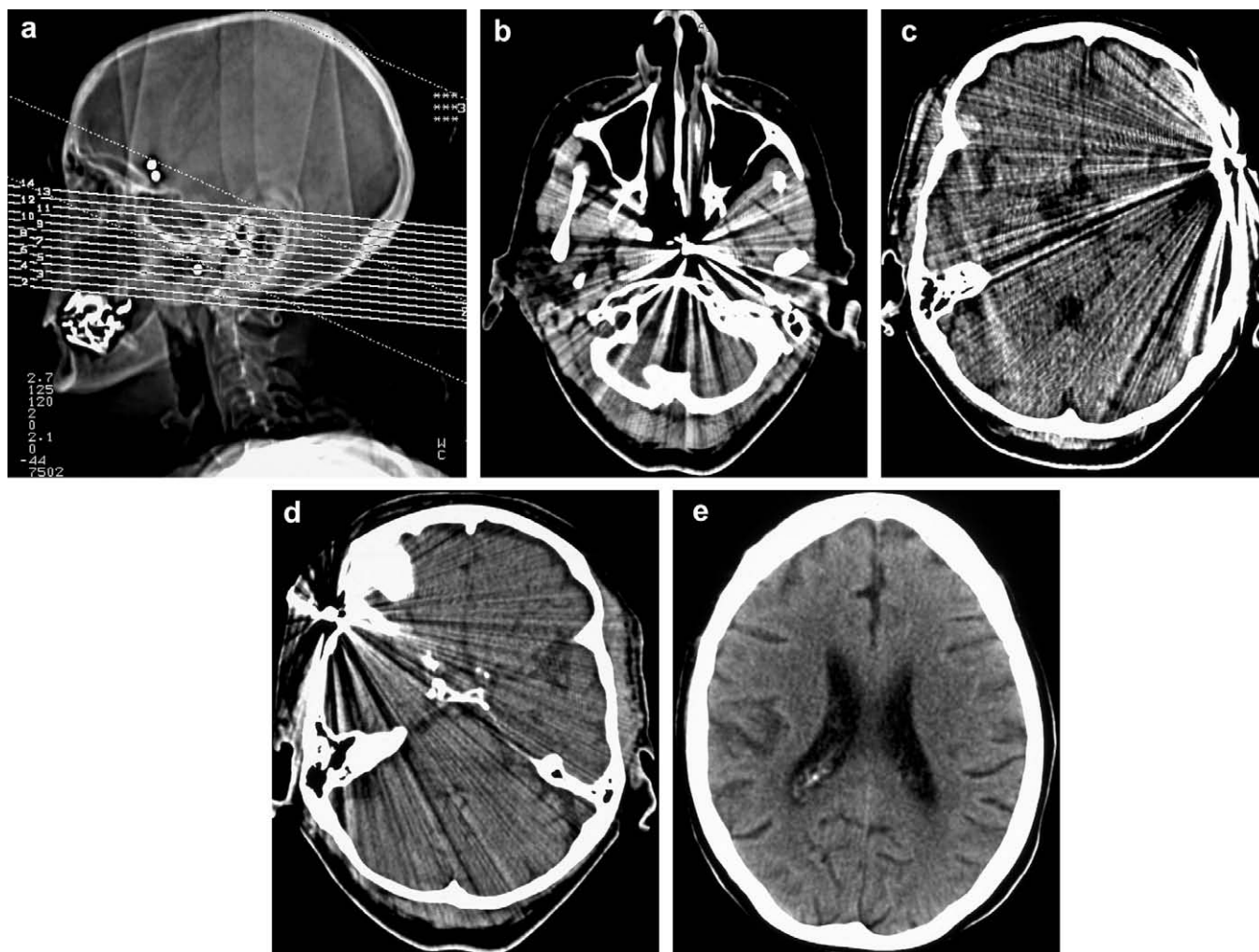


Fig. 1. Emergency imaging studies of a 74 year old male patient after attempted suicide with a shotgun. (a) lateral X-ray demonstrating two bullets in the temporal bone and one in the hard palate. (b–d) axial CCT scans with metal artifacts at the described locations. (e) axial CCT scan at the level of the ventricles excluding a brain injury or bullet penetration.

previous act of self-harm, than people who commit suicide by other methods. Suicide in these persons is more likely to have been precipitated by a relationship dispute. The international literature provides evidence of a strong association between rates of gun ownership and gunshot suicide, and some evidence of a reduction in firearm suicide rates following the introduction of restrictive firearm legislation.

According to official statistics, about one million people die by suicide annually, more than those murdered or killed at war.² As of 2001 in the USA, suicides outnumber homicides by 3–2 and deaths from AIDS by 2.1(2). In the Western world, males die much more often by means of suicide than do females, although females attempt suicide more often. This pattern has held for at least a century.⁴ Some medical professionals believe this stems from the fact that males are more likely to end their lives through effective violent means (guns, knives, hanging, etc.), while women primarily use more failure-prone methods such as overdosing on medications.

In the case presented here a Luger P08 pistol was used for the attempted suicide. The “Parabellum-Pistole”, known as the Luger is a toggle locked, recoil operated, semi-automatic pistol. The design was patented by Georg Luger in 1898 and produced by German arms manufacturer Deutsche Waffen- und Munitionsfabriken (DWM) starting in 1900.⁵ The Luger was a typical gun in the German army during World War I and World War II. The 7.65 × 21 mm

Parabellum (also known as .30 Luger and 7.65 mm Luger, Fig. 2) was a pistol cartridge introduced in 1898 by German arms manufacturer Deutsche Waffen und Munitions Fabriken (DWM) for their new Pistol Parabellum.



Fig. 2. Luger 7.65 × 21mm Parabellum pistol cartridge as used for the Luger P08 pistol (Deutsche Waffen- und Munitionsfabriken, DWM).

Low explosives like gunpowder in cartridges do not explode (detonate) under normal conditions but actually deflagrate (burn fast). The 7.65 × 21 mm Parabellum cartridges normally create a bullet velocity of 365 m/s (1200 ft/s) which can easily penetrate the human skull.⁵ In this case the bullets were stored for around 50 years in a humid environment, which probably decreased the speed of deflagration significantly reducing the power of the 7.65 mm gun to that of an air pistol.

Conflict of interest statement

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Ethical approval

None declared.

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